UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
WILDLIFE SERVICES

ENVIRONMENTAL ASSESSMENT (EA)

Nesting Double-crested Cormorant Damage Management in the Arkansas Wildlife Services Program

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Animal and Plant Health Inspection Service
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INTRODUCTION

The United States Department of Agriculture (USDA) is authorized and directed by law to protect American agriculture and other resources from damage associated with wildlife. The statutory authority for the United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services (WS) program comes from the Animal Damage Control Act of March 2, 1931, as amended (7 U.S.C. 426-426c; 46 Stat. 1468) and the Rural Development, Agriculture and Related Agencies Appropriation Act of 1988. WS activities are conducted in cooperation with other federal, state and local agencies, and private organizations and individuals. This Environmental Assessment (EA) evaluates ways by which this responsibility can be carried out to resolve conflicts associated with nesting double-crested cormorants (Phalacrocorax auritus) in Arkansas.

Wildlife damage management or control, is defined as the alleviation of damage or other problems caused by or related to the presence of wildlife. It is an integral component of wildlife management (Leopold 1933, The Wildlife Society 1990, Berryman 1991). Wildlife Services' program uses an Integrated Wildlife Management (IWM) approach (sometimes referred to as Integrated Pest Management or IPM) in which a combination of methods may be used or recommended to reduce wildlife damage. IWM is described in Chapter 1, 1-7 of the Animal Damage Control Program Final Environmental Impact Statement (FEIS), (U.S. Dept. Agri. 1997). These methods include the alteration of cultural practices as well as habitat and behavioral modification to prevent damage. The control of wildlife damage may also require that the offending animal(s) be removed or that populations of the offending species be reduced through lethal methods. Potential environmental impacts resulting from the application of various wildlife damage reduction techniques are evaluated in this environmental assessment.

WS is a cooperatively funded and service oriented program. Before any operational wildlife damage management is performed, agreements for control or work plans must be completed by WS and the land owner/administrator. WS cooperates with private property owners and managers and with appropriate wildlife management agencies, as requested, with the goal of effectively and efficiently resolving wildlife damage problems in compliance with all applicable federal, state and local laws and Memorandums of Understanding (MOUs) between WS and other agencies. WS's mission is to "provide leadership in wildlife damage management in the protection of America's agricultural, industrial and natural resources, and to safeguard public health and safety." This is accomplished through:

A) training of wildlife damage management professionals;
B) development and improvement of strategies to reduce economic losses and threats to humans from wildlife;
C) collection, evaluation, and dissemination of management information;
D) cooperative wildlife damage management programs;
E) informing and educating the public on how to reduce wildlife damage and;
F) providing data and a source for limited-use management materials and equipment, including pesticides (USDA 1989).

According to the Animal and Plant Health Inspection Service procedures implementing the National Environmental Policy Act (NEPA), individual control actions may be categorically excluded (7 C.F.R. 372.5(c), 60 Fed. Reg. 6,000, 6,003 (1995). In order to evaluate and determine if there may be any potentially significant or cumulative impacts from the proposed control program, WS has decided to prepare this environmental assessment (EA). This environmental assessment documents the analysis of the potential environmental effects of the proposed activities in the state of Arkansas. This analysis relies mainly on existing data contained in published documents, primarily the Animal Damage Control Program Final Environmental Impact Statement (U.S. Dept. Agri. 1997) to which this EA is tiered.

These WS activities will be undertaken in compliance with relevant laws, regulations, policies, orders, and procedures, including the Endangered Species Act. Notice of Availability of this document will be made, consistent with the Agency's NEPA procedures in order to allow interested parties the opportunity to obtain and review this document and comment on the proposed management activities.

NEED FOR ACTION

DCC Impacts to Resources

DCC are known to have a negative impact on aquaculture (Stickley, et al. 1992, Glahn and Brugger 1995, Glahn et al. 1995, Wywialowski 1999), sport fish resources (Korfanty et al. 1999, Schneider et al. 1998) wetland habitats (Jarvie et al. 1999, Shieldcastle and Martin 1999) and wildlife, including threatened and endangered species (Korfanty et al. 1999).

Arkansas leads the U.S. in bait fish production and ranks second in catfish production. In 1998, Arkansas aquaculture industry was valued a $162.8 million (B. Collins, USDA/ARS, pers. comm., 2000). Price and Nickum (1995) concluded that the aquaculture industry has small profit margins so that even a small percentage reduction in the farmgate value due to predation is an economic issue. The magnitude of economic impacts that cormorants have on the aquaculture industry can vary dependent upon many different variables including, the value of the fish stock, number of depredating bids present, and the time of year the predation is taking place. Controlled experiments by Glahn et al. (In Press) investigating predation losses to catfish by cormorants confirm previous estimates of cormorant damage and have started to examine output parameters at harvest with and without cormorant predation. Using sampling weights of catfish inventoried from captive cormorant trials, Glahn et al (In Press) calculated a 19.6% biomass production loss from cormorant predation. At a commercial pond scale the 20% loss in production would correspond to a loss of 6800 kg valued at $10,500 or almost 5 times the value of the fingerlings lost. Furthermore, Glahn et al. (In Press) examined the economic effects of cormorant predation on net returns in an enterprise budget for an average 130 ha catfish farm using data collected from captive cormorant trials and standard budgeting techniques. Enterprise budgets resulted in a 111% loss of profits based upon a 20% production loss observed at harvest from simulating 30 cormorants 6 hectare catfish pond for 100 days.

Accumulation of cormorant droppings (which contribute excessive ammonium nitrogen), stripping leaves for nesting material, and the combined weight of the birds and their nests can break branches and ultimately kill many trees within 3 to 10 years (Bedard et al.1995; Korfanty et al. 1999, Lemmon et al. 1994; Lewis 1929; Weseloh et al.1995; Weseloh and Ewins 1994; Weseloh and Collier 1995). Lewis (1929) considers the killing of trees by nesting cormorants to be very local and limited, with most trees he observed to have no commercial timber value. However, tree damage may be perceived as a problem if these trees are rare species, or aesthetically valued (Hatch and Weseloh 1999).

At the present time, the majority of the problems caused by DCC in Arkansas occur during the nonbreeding season. However, action needs to be taken to prevent the establishment of considerable numbers of nesting cormorants in Arkansas so that these problems do not broaden to the entire year. In 1993, the Arkansas State Legislature declared the DCC a nuisance animal based on its impact to the state's aquaculture industry (Arkansas Senate Bill 345 [1993]). In Arkansas, specific damage to sport fish by DCC is unknown, but continued population expansion of DCC will have a detrimental effect on wild fisheries within the state (Mike Freeze, Arkansas Game & Fish Commission, pers. comm., 2000). Specifically, DCC impact on forage fish populations is a concern of resource managers in Arkansas (Hugh Durham, Arkansas Game and Fish Commission, pers. comm., 2000). Cormorants taken under the 1998 USFWS Depredation Order (USDI-FWS 1998) have revealed that cormorants are impacting aquaculture during the summer months. Cormorants taken during the months of June and July have increased more than 4-fold between 1998 and 1999 with 17 and 83 cormorants being taken in each year, respectively. These birds were taken at aquaculture facilities when "committing or about to commit depredation" upon commercial fishstocks. Lethal removal of DCC from aquaculture facilities is a difficult task with only a minimal number of birds being taken when compared to the actual number of depredating birds present (Belant et al. 2000, Mastrangelo et al. 1997). Therefore, the numbers of birds taken are only a representative sample of the extent and severity of damage that DCC are having during the summer months on aquaculture facilities. During Fiscal Years (FY) 1995 to 1999, as a nationwide program, 39 WS' state programs completed 1,196 Technical Assistance projects related to double-crested cormorants (Unpublished MIS Data). Arkansas WS reported 314 Technical Assistance projects during this 5 year period representing over 25% of the projects nationwide. Assistance was provided and losses were reported in the resource categories of aquaculture (baitfish, catfish, hybrid striped bass, other food fish), property (buildlings/structures, general property), and natural resources (forestry, wild fisheries).

History and Expansion of DCC Nesting Population in Arkansas

Little is known about nesting DCC in Arkansas. James and Neal (1986) and Jackson and Jackson (1995) report former Arkansas DCC breeding sites in Mississippi and Phillips Counties during the early 1900's, but the last known nesting in the state occurred at Grassy Lake in Hempstead County in 1951. Mills (1989) reported five nests with young at [redacted] on June 24, 1989. Seventy-two nesting DCC were documented on [redacted] in [redacted] by WS in 1999. Ninety adult DCC in breeding plumage were observed by WS at [redacted] in June of 2000. These reports suggest a substantial population increase in the past ten years. Similar expansion of nesting DCC populations have been observed in Mississippi (Reinhold 1998).

Incidental observations by WS field personnel also suggest an increase in the number of DCC throughout Arkansas during the breeding season. Other than the [redacted] rookery, no documented DCC breeding sites currently exist in Arkansas (A. Mueller, USFWS, pers. Comm., 2000). Since nesting DCC's have not yet established themselves away from [redacted], no substantial data are currently available on the food habits or economic impact of nesting DCC's in Arkansas. However, should the nesting population of DCC continue to increase, it is conceivable that aquaculture, sport fish and habitat damage will equal or exceed levels observed during the non-breeding season.

Since 1999, WS has collected DCC's at [redacted] for scientific study and population suppression. One hundred and thirty-seven DCC were collected during the breeding season at [redacted] in 1999 and 70 DCC's in 2000. WS reported 100 DCC nests at [redacted] in May of 1999 and 45 nests in June of 2000 (Unpublished WS data). This information indicates that the removal of DCC during the 1999 nesting season effectively reduced the nesting population but did not eliminate nesting activity from [redacted]. Since these collections successfully suppressed DCC breeding activity at [redacted] in 2000, WS proposes to expand this work to a statewide nesting DCC suppression program.

PROPOSED ACTION

The proposed action will include the lethal removal and suppression of nesting DCC's throughout the state of Arkansas and will incorporate WS's current technical assistance approach to managing DCC conflicts. WS will attempt to locate all DCC rookeries in Arkansas and document existing numbers of breeding pairs and nests. At this time, the [redacted] rookery is the only active DCC nesting area known in Arkansas. Based on previous breeding bird surveys (Mills 1989) our proposed action will consider the [redacted] nesting DCC optimum population to be 5 nesting pairs. Nest monitoring at [redacted] will continue in successive years to determine any rate of increase. If the rookery population at [redacted] increases beyond the optimum level (5 nesting pair), DCC will be killed until the optimum population is reached upon request from the land manager. During control efforts at [redacted], 5 active nests will be isolated from the lethal removal program and protected. Statewide surveys will continue in an attempt to locate new or existing DCC rookeries. If new DCC rookeries are located, an effort will be made to notify all interested parties and determine past DCC nesting history of the area. If it can credibly be determined that a DCC rookery previously existed in this location, then the current number of adult DCC will be used as the optimum population for that site. This site will then be monitored and managed for the optimum population upon request and consent of the property owner(s). If a DCC rookery is found in a location which has not previously supported nesting cormorants, an attempt will be made to destroy all DCC at this site upon request and consent of the property owner(s). DCC taken in the scope of this project will be removed with shotguns to ensure safe and humane kills; however, rifles may be used if it is determined to be a safer and more practical method. Nontoxic shot will be used in shotguns to help limit environmental exposure to lead shot. As part of this proposed action, DCC will only be killed during the April - August nesting season . Whenever possible, WS will attempt to kill nesting DCC prior to egg hatching. Nesting DCC control actions will only take place after a request for services has been received and where permission has been granted by private landowner or

government manager. WS would provide technical assistance to the public through verbal or written advice. This may include management recommendations, general information, demonstrations and training. WS distributes literature and materials for others to use in reducing DCC problems. Technical assistance is usually provided following a verbal consultation or an on site visit to determine the nature and history of the problem, extent of damage, and identification of the species responsible for damage.

OBJECTIVE

Suppress and maintain the nesting DCC population in Arkansas at optimum levels. Optimum levels of nesting DCC in Arkansas are the following:

1. Maintain [redacted] rookery at an annual level of 5 nesting pairs.
2. Maintain newly discovered DCC rookeries at their current level, if they can be credibly documented to exist prior to the year of discovery.
3. Destroy all DCC at newly established rookery sites that can not be credibly documented to have existed prior to the year of discovery.

Decision to be Made

- Should WS implement a DCC nest suppression program in Arkansas?

- If not, should WS attempt to implement one of the alternatives to the suppression program as described in the EA?

- Would the proposed action have significant impacts on the quality of the human environment requiring preparation of an EIS?

Scope Of This Environmental Assessment Analysis

Actions Analyzed. This EA evaluates nesting DCC damage management by WS to protect aquacultural resources, sport fisheries, property, and natural resources on private land or public facilities within the State wherever such management is requested from the WS program.

Period for Which this EA is Valid. This EA will remain valid until WS determines that new needs for action or new alternatives having different environmental effects must be analyzed. At that time, this analysis and document will be reviewed and revised as necessary. This EA will be reviewed each year to ensure that it is complete and still appropriate to the scope of the State nesting DCC damage management activities.

Site Specificity. This EA analyzes potential impacts of WS's nesting DCC damage management activities that will occur or could occur at private property sites or at public facilities within the State of Arkansas. Because the proposed action is to provide service when requested within the constraints of available funding and personnel, it is conceivable that

nesting DCC damage management activity by WS could occur anywhere in the State. Thus, this EA analyzes the potential impacts of such efforts wherever and whenever they might occur as part of the current program. The EA emphasizes significant issues as they relate to specific areas whenever possible. However, the issues that pertain to the various types of nesting DCC damage and resulting management are the same, for the most part, wherever they occur, and are treated as such. The standard WS Decision Model (Slate et al. 1992) and WS Directive 2.105 is the routine thought process that is the site-specific procedure for determining methods and strategies to use or recommend for individual actions conducted by WS in the State (See USDA 1997, Chapter 2 and Appendix N for a more complete description of the WS Decision Model and examples of its application). Decisions made using this thought process will be in accordance with any mitigation measures and standard operating procedures described herein and adopted or established as part of the decision.

Affected Environment

The areas of the proposed action include area of the State that DCC's are currently or may attempt to use as nesting sites. These areas may include lakes, swamps, marshes, riverines, rivers, streams, and any other water or land bodies that DCC's may use as nesting sites. The proposed action could occur on private or public properties within the State of Arkansas.

Public Involvement/Notification

As part of this process, and as required by the Council on Environmental Quality (CEQ) and APHIS-NEPA implementing regulations, this document and its Decision are being made available to the public through "Notices of Availability" (NOA) published in local media and through direct mailings of NOA to parties that have specifically requested to be notified. New issues or alternatives raised after publication of public notices will be fully considered to determine whether the EA and its Decision should be revisited and, if appropriate, revised.

RELATIONSHIP TO OTHER ENVIRONMENTAL DOCUMENTS

ADC Programmatic EIS. WS [formerly known as Animal Damage Control (ADC)] has issued a Final Environmental Impact Statement (FEIS) on the National APHIS/WS program (USDA 1997). Pertinent and current information available in the Final EIS has been incorporated by reference into this EA.

AUTHORITY AND COMPLIANCE

Authority of Federal Agencies in Wildlife Damage Management in Arkansas

Wildlife Services Legislative Authority

The primary statutory authority for the Wildlife Services program is the Animal Damage Control Act of 1931, as amended in the Fiscal Year 2001 Agriculture Appropriations Bill, which provides that:

> *"The Secretary of Agriculture may conduct a program of wildlife services with respect to injurious animal species and take any action the Secretary considers necessary in conducting the program. The Secretary shall administer the program in a manner consistent with all of the wildlife services authorities in effect on the day before the date of the enactment of the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2001."*

Since 1931, with the changes in societal values, WS policies and its programs place greater emphasis on the part of the Act discussing "bringing (damage) under control", rather than "eradication" and "suppression" of wildlife populations. In 1988, Congress strengthened the legislative mandate of WS with the Rural Development, Agriculture, and Related Agencies Appropriations Act. This Act states, in part:

> "*That hereafter, the Secretary of Agriculture is authorized, except for urban rodent control, to conduct activities and to enter into agreements with States, local jurisdictions, individuals, and public and private agencies, organizations, and institutions in the control of nuisance mammals and birds and those mammals and birds species that are reservoirs for zoonotic diseases, and to deposit any money collected under any such agreement into the appropriation accounts that incur the costs to be available immediately and to remain available until expended for Animal Damage Control activities."*

U.S. Department of Interior, Fish and Wildlife Service Legislative Authority

The U. S. Fish and Wildlife Service's (USFWS) authority for action is based on the Migratory Bird Treaty Act of 1918 (as amended), which implements treaties with the United States, Great Britain (for Canada), the United Mexican States, Japan, and the Soviet Union. Section 3 of this Act authorized the Secretary of Agriculture:

> "From time to time, having due regard to the zones of temperature and distribution, abundance, economic value, breeding habits, and times and lines of migratory flight of such birds, to determine when, to what extent, if at all, and by what means, it is compatible with the terms of the convention to allow hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage, or export of any such bird, or any part, nest, or egg thereof, and to adopt suitable regulations permitting and governing the same, in accordance with such determinations, which regulations shall become effective when approved by the President".

The authority of the Secretary of Agriculture with respect to the Migratory Bird Treaty was transferred to the Secretary of the Interior in 1939 pursuant to Reorganization Plan No. II. Section 4(f), 4 Fed. Reg. 2731, 53 Stat. 1433.

Compliance with Other Federal and State Statutes

Several federal laws, state laws, and state regulations regulate WS wildlife damage management. WS complies with these laws and regulations, and consults and cooperates with other agencies as appropriate.

National Environmental Policy Act (NEPA). Environmental documents pursuant to NEPA must be completed before work plans consistent with the NEPA decision can be implemented. WS also coordinates specific projects and programs with other agencies. The purpose of these contacts is to coordinate any wildlife damage management that may affect resources managed by these agencies or affect other areas of mutual concern.

Endangered Species Act (ESA). It is federal policy, under the ESA, that all federal agencies shall seek to conserve endangered and threatened species and shall utilize their authorities in furtherance of the purposes of the Act [Sec. 2(c)]. WS conducts Section 7 consultations with the FWS to use the expertise of the FWS to ensure that "any action authorized, funded or carried out by such an agency. . . is not likely to jeopardize the continued existence of any endangered or threatened species. . . Each agency shall use the best scientific and commercial data available" [Sec. 7(a)(2)].

Migratory Bird Treaty Act (MBTA). The MBTA provides the FWS regulatory authority to protect species of birds that migrate outside the United States . The law prohibits any "take" of the species, except as permitted by the FWS or by federal agencies within the scope of their authority; therefore the FWS issues permits for managing wildlife damage situations. WS will receive a FWS issued depredation, special purpose, or other appropriate permit before any control activities are conducted that involve the "take" of a species protected under the MBTA. Therefore if WS conducts control activities involving the "take" of a species protected by the MBTA a FWS permit will be obtained prior to the implementation of any operational control activities on a MBTA protected species. Additionally, WS actions are consistent with what is allowed under 50 Code of Federal Regulations, Part 21, developed by the FWS. WS may conduct control activities under the authority of FWS permits issued to individuals or other federal and state agencies when listed as a named agent on the permits. Furthermore, if state agencies are to assist WS in taking migratory birds then those state agencies are required by MBTA to obtain a permit.

National Historic Preservation Act (NHPA) of 1966 as amended. The National Historic Preservation Act (NHPA) of 1966, and its implementing regulations (36 CFR 800), requires federal agencies to: 1) determine whether activities they propose constitute "undertakings" that can result in changes in the character or use of historic properties and, 2) if so, to evaluate the effects of such undertakings on such historic resources and consult with the State Historic Preservation Office regarding the value and management of specific cultural, archaeological and historic resources, and 3) consult with appropriate American Indian Tribes to determine whether they have concerns for traditional cultural properties in areas of these federal undertakings. WS actions on tribal lands are only conducted at the tribe's request and under signed agreement; thus, the tribes have control over any potential conflict with cultural resources on tribal properties. WS activities as described under the proposed action do not cause ground disturbances nor do they otherwise have the potential to significantly affect visual, audible, or

atmospheric elements of historic properties and are thus not undertakings as defined by the NHPA. Nesting DCC damage management could benefit historic properties if such properties were being damaged by DCC's. In those cases, the officials responsible for management of such properties would make the request and would have decision-making authority over the methods to be used. WS has determined nesting DCC damage management actions are not undertakings as defined by the NHPA because such actions do not have the potential to result in changes in the character or use of historic properties. A copy of this EA is being provided to each American Indian tribe in the State to allow them opportunity to express any concerns that might need to be addressed prior to a decision.

Environmental Justice and Executive Order 12898 - *"Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations."* Executive Order 12898, entitled, "Federal Actions to Address Environmental Justice in Minority. Populations and Low Income Populations" promotes the fair treatment of people of all races, income levels and cultures with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Environmental justice is the pursuit of equal justice and protection under the law for all environmental statutes and regulations without discrimination based on race, ethnicity, or socioeconomic status. It is a priority within APHIS and WS. Executive Order 12898 requires Federal agencies to make environmental justice part of their mission, and to identify and address disproportionately high and adverse human health and environmental effects of Federal programs, policies and activities on minority and low income persons or populations. APHIS implements Executive Order 12898 principally through its compliance with NEPA. All WS activities are evaluated for their impact on the human environment and compliance with Executive Order 12898. WS personnel use only legal, effective, and environmentally safe wildlife damage management methods, tools, and approaches. It is not anticipated that the proposed action would result in any adverse or disproportionate environmental impacts to minority and low income persons or populations.

Executive Order 13045 - *Protection of Children from Environmental Health and Safety Risks*

Children may suffer disproportionately from environmental health and safety risks for many reasons, including their development physical and mental status. Because WS makes it a high priority to identify and assess environmental health and safety risks that may disproportionally affect children, WS has considered the impacts that this proposal might have on children. The proposed cormorant damage management would occur by using only legally available and approved methods where it is highly unlikely that children would be adversely affected. For these reasons, WS concludes that it would not create an environmental health or safety risk to children from implementing this proposed action.

ISSUES CONSIDERED

This section contains a discussion of the issues, including those that will receive detailed environmental impacts analysis in Environmental Consequences section and those that were used to develop mitigation measures and SOPs. Pertinent portions of the affected environment will be included in this section in the discussion of issues used to develop mitigation measures.

Issues are concerns of the public and/or of professional communities about potential environmental problems that might occur from a proposed federal action. Such issues must be considered in the NEPA decision process. Issues relating to the management of wildlife damage were raised during the scoping process in preparing the programmatic WS FEIS (USDA 1997) and were considered in the preparation of this EA. These issues are fully evaluated within the FEIS, which analyzed data specific to the Arkansas WS Program.

ISSUES ANALYZED IN DETAIL IN THE ENVIRONMENTAL CONSEQUENCES SECTION

Following are issues that have been identified as areas of concern requiring consideration in this EA.

- Impact on DCC populations
- Impact on nontarget species populations including threatened and endangered species
- Effects on public safety
- Humaneness of methods used
- Effects on Aesthetics

Effects on DCC Populations

A common concern among members of the public is whether wildlife damage management actions adversely affect the viability of target species populations. The target species selected for analysis in this EA are nesting double-crested cormorants in Arkansas.

The North American DCC breeding population has increased at an average of 6.1% per year from 1966-1994 (Sauer et al. 1996) and the overall population is estimated at 1-2 million birds (Hatch 1995). Sixty-one percent of the breeding birds belong to the Interior population, which is the fastest growing of the six major North American breeding populations (Hatch 1995). The number of DCC in the Great Lakes region within the Interior DCC population has increased at an average of 29% annually from 1970-1991 (Weseloh et al. 1995). The DCC's that affect Arkansas are included in the Interior DCC population. DCC numbers in the southeastern U.S., including Arkansas have been on the increase since the late 1980's (Jackson and Jackson 1995). Roost surveys conducted by WS in Arkansas indicate an increased wintering population from 4,972 DCC in 1993 to 60,278 DCC in 2000.

Impact on nontarget species populations including threatened and endangered species

A common concern among members of the public and wildlife professionals, including WS personnel, is the impact of damage control methods and activities on nontarget species, particularly Threatened and Endangered Species. Special efforts are made to avoid jeopardizing Threatened and Endangered Species through biological evaluations of the potential effects and the establishment of special restrictions or mitigation measures. WS has consulted with the USFWS under Section 7 of the Endangered Species Act (ESA) concerning potential impacts of nesting

DCC damage management control methods on T&E species and has obtained a Biological Opinion (B.O.). For the full context of the B.O., see Appendix F of the ADC FEIS (USDA 1997, Appendix F). WS's standard operating procedures include measures intended to mitigate or reduce the effects on nontarget species populations and are described in other sections of this EA.

In contrast to adverse impacts on nontarget animals from direct take by control methods, some nontarget species may actually benefit from nesting DCC damage management control methods. Large concentrations of nesting DCC's may displace other nesting birds by competing for the same nesting space.

Effects on public safety

Some people may be concerned that WS's use of firearms could cause injuries to people. WS personnel use shotguns and rifles to remove DCC's from rookeries. WS's standard operating procedures include measures intended to mitigate or reduce the effects on public safety are described in other sections of this EA.

Humaneness of methods used

The issue of humaneness and animal welfare, as it relates to the killing or capturing of wildlife is an important but very complex concept that can be interpreted in a variety of ways. Schmidt (1989) indicated that vertebrate pest damage management for societal benefits could be compatible with animal welfare concerns, if *" . . . the reduction of pain, suffering, and unnecessary death is incorporated in the decision making process."*

Suffering is described as a *" . . . highly unpleasant emotional response usually associated with pain and distress."* However, suffering *" . . . can occur without pain . . . ,"* and *" . . . pain can occur without suffering . . . "* (AVMA 1987). Because suffering carries with it the implication of a time frame, a case could be made for *" . . . little or no suffering where death comes immediately . . . "* (CDFG 1991), such as shooting.

Defining pain as a component in humaneness of WS methods appears to be a greater challenge than that of suffering. Pain obviously occurs in animals. Altered physiology and behavior can be indicators of pain, and identifying the causes that elicit pain responses in humans would *" . . . probably be causes for pain in other animals . . . "* (AVMA 1987). However, pain experienced by individual animals probably ranges from little or no pain to significant pain (CDFG 1991).

Pain and suffering, as it relates to WS damage management methods, has both a professional and lay point of arbitration. Wildlife managers and the public would be better served to recognize the complexity of defining suffering, since *" . . . neither medical or veterinary curricula explicitly address suffering or its relief"* (CDFG 1991).

Therefore, humaneness, in part, appears to be a person's perception of harm or pain inflicted on an animal, and people may perceive the humaneness of an action differently. The challenge in coping

with this issue is how to achieve the least amount of animal suffering within the constraints imposed by current technology and funding.

WS has improved the selectivity and humaneness of management techniques through research and development. Research is continuing to bring new findings and products into practical use. Until new findings and products are found practical, a certain amount of animal suffering could occur when some control methods are used in situations where nonlethal damage management methods are not practical or effective.

Arkansas WS personnel are experienced and professional in their use of management methods so that they are as humane as possible under the constraints of current technology, workforce and funding. Mitigation measures/SOPs used to maximize humaneness are listed in other sections of this EA.

Effects on Aesthetics

The effects of alternatives on human affectionate bonds with individual cormorants and on general aesthetic values of cormorants vary widely among people. Some cormorants live in very close proximity to humans, and people in these situations develop emotional/affectionate attitudes toward the cormorant. Other people do not develop emotional bonds with individual cormorant, but experience aesthetic enjoyment from observing them and/or the knowledge of the existence of cormorant nearby.

Public reaction to wildlife damage management is variable because individual members of the public may have very different attitudes toward wildlife. Some individuals that are negatively affected by wildlife support removal or relocation of damaging wildlife. Other individuals affected by the same wildlife may oppose removal or relocation. Individuals unaffected by wildlife damage may be supportive, neutral, or opposed to wildlife removal depending on their individual values and attitudes.

ALTERNATIVES CONSIDERED, INCLUDING PROPOSED ACTION

The No Action alternative is a procedural NEPA requirement (40 CFR 1502), it is a viable and reasonable alternative that could be selected, and serves as a baseline for comparison with the other alternatives. The No Action alternative, as defined here, is consistent with the Council on Environmental Quality's (CEQ's) definition (CEQ 1981).

Alternative One- Population Suppression and Technical Assistance (Proposed Action)
Under this Alternative WS would provide Technical Assistance and suppress the growth of nesting DCC populations in Arkansas by monitoring existing rookeries and annually adjusting populations to predetermined levels by lethal removal of DCC. A detailed description of the Proposed Action is provided at the beginning of this EA under the Proposed Action section.

Alternative Two- No Federal Action

This Alternative would allow nesting DCC populations in Arkansas to continue at their current rate of increase. WS would not be involved in the management of problems caused by DCC during the breeding season.

Alternative Three- DCC Monitoring and Technical Assistance (No Action)
Under this alternative WS would continue to monitor Arkansas nesting DCC populations and provide technical assistance to stakeholders experiencing damage during DCC breeding season. This alternative would not provide any direct operational control of nesting DCC populations in Arkansas. No nesting DCC's would be lethally removed by WS under this alternative.

Alternative Four- Nest and Egg Destruction
Under this Alternative WS would suppress growth of nesting DCC populations in Arkansas by monitoring existing rookeries and annually adjusting populations to predetermined levels outlined in Alternative One by nest and egg destruction. No adult or young of the year DCC would be lethally removed under this alternative.

Alternative Five- Eradication of DCC nesting population
Under this alternative WS would eliminate all nesting DCC populations from Arkansas by lethal removal of adult and young of year birds. Control methods used under this alternative would be similar to the proposed action. DCC's would not be allowed to nest or reproduce anywhere in the State. All existing and newly discovered DCC rookeries would be eliminated.

MITIGATION AND STANDARD OPERATING PROCEDURES FOR WS SHOOTING OF NESTING DCC's

Mitigation in Standard Operating Procedures (SOPs)

Mitigation measures are any features of an action that serve to prevent, reduce, or compensate for impacts that otherwise might result from that action. The current WS program, nationwide and in Arkansas, uses many such mitigation measures and these are discussed in detail in Chapter 5 of the FEIS (USDA 1997).

Some key mitigating measures pertinent to the proposed action and alternatives that are incorporated into WS's Standard Operating Procedures are listed below. Any decision that results from this EA that includes WS actions would also include mitigation measures contained in this section.

- The WS Decision Model is used to identify effective wildlife damage management strategies and their impacts.
- Reasonable and prudent measures or alternatives are implemented to avoid impacts to T&E species
- Research is being conducted to improve wildlife damage management methods and strategies so as to increase selectivity for target species, to develop effective

nonlethal control methods, and to evaluate nontarget hazards and environmental impacts.

- WS uses methods and tools for which the risk of hazards to public safety and hazard to the environment have been determined to be low according to a risk assessment conducted in the programmatic EIS (USDA 1997, Appendix P). Where such activities are conducted on private lands or other lands of restricted public access, the risk of hazard to the public is even further reduced.

Additional Mitigation Specific to the Issues

The following is a summary of additional mitigation measures that are specific to the issues listed in this document

Effects on Nontarget Species Populations Including T&E Species

- WS personnel are trained and experienced to select the most appropriate tools and methods for taking target animals and excluding nontargets.

- Nationally, WS has consulted with the FWS regarding potential impacts of control methods on T&E species, and abides by reasonable and prudent alternatives (RPAs) and/or reasonable and prudent measures (RPMs) established as a result of that consultation. For the full context of the Biological Opinion see the ADC FEIS, Appendix F (USDA 1997). Further consultation on species not covered by or included in that formal consultation process has been initiated with the USFWS and WS will abide by any RPAs, RPMs, and terms and conditions that result from that process to avoid jeopardizing any listed species. WS has determined that the proposed WS actions will have no affect on Federal T&E species. WS will contact FWS if the proposed action changes in the future.

Effects on Human Health and Safety

- Trained and professional wildlife biologists employed by the WS program would conduct DCC shooting activities according to all safety guidelines and thorough use of safe and legal firearms and equipment.

- Target animals would be positively identified before shots are taken.

Humaneness of Shooting DCC's

- WS biologists attempt to kill target animals as quickly and humanely as possible.

- Research continues within the WS program with the goal of improving the selectivity and humaneness of tools and methods.

- All management methods would be used in a manner that minimizes pain and suffering of individual animals, to the extent that the method is effective and its use is practical.

ENVIRONMENTAL CONSEQUENCES

This section provides information needed for making informed decisions in selecting the appropriate alternative for meeting the purpose of the proposed action. The section analyzes the environmental consequences of each alternative in relation to the issues identified for detailed analysis. This section analyzes the environmental consequences of each alternative in comparison with the no action alternative to determine if the real or potential impacts would be greater, lesser, or the same. Therefore, the current program alternative serves as the baseline for the analysis and the comparison of expected impacts among the alternatives.

The following resource values within the State are not expected to be significantly impacted by any of the alternatives analyzed: soils, geology, minerals, water quality/quantity, flood plains, wetlands, visual resources, air quality, prime and unique farmlands, aquatic resources, timber, and range. These resources will not be analyzed further.

Cumulative Impacts: Discussed in relationship to each of the potentially affected issues analyzed in this section.

Irreversible and Irretrievable Commitments of Resources: Other than minor uses of fuels for motor vehicles and other materials, there are no irreversible or irretrievable commitments of resources.

Impacts on sites or resources protected under the National Historic Preservation Act: WS nesting DCC damage management actions are not undertakings that could adversely affect historic resources.

Environmental Consequences for Issues Analyzed in Detail

Effects on DCC Populations

Alternative One- Population Suppression and Technical Assistance (Proposed Action)
This alternative would allow control of nesting DCC populations while maintaining the current biological diversity found in Arkansas. Breeding season DCC damage to aquaculture, sport fish resources and wetland habitats should stabilize and objectives of EA will be reached with minimal environmental impact. Arkansas' nesting population of DCC would be maintained at previously documented levels (James and Neal 1986 & Mills 1989) as outlined in the proposed action and is supported by the Arkansas Game and Fish Commission (Hugh C. Durham AGFC, Letter dated February 16, 2001). Local populations of nesting DCC's could be reduced or eliminated under this alternative. Cumulative effects of this alternative will stabilize nesting DCC populations within Arkansas. This alternative would have minimal effects upon regional (southeast) and flyway DCC populations. Since the majority of the DCC which inhabit Arkansas in the non-breeding season are migratory (Dolbeer 1991), their numbers will not be effected by the proposed action. Table 1 further supports this fact since the take of DCC during the summer is minimal when compared to the statewide or regional wintering populations. Therefore, the scope

of this project would not negatively impact the wintering population of DCC in Arkansas. Likewise, the proposed action is not expected to have any cumulative impact upon the continental DCC population.

Alternative Two- No Federal Action

Nesting DCC populations in Arkansas will be left alone and numbers would likely increase above historical levels. Damage to aquaculture, sport fish and wetland habitats would go unchecked without WS involvement. Objectives of this EA would not be met. An important issue to consider is that delayed action in this situation could result in increased take of nesting DCC's at a later date. The increase in nesting DCC populations in Arkansas will not have considerable effect on continental DCC populations. Cumulative effects of expanding nesting DCC populations in Arkansas will lead to increased degradation of sensitive wetland rookery habitats and damage of local sport fish populations.

Alternative Three- DCC Monitoring and Technical Assistance (No Action)

WS activities concerning nesting DCC would remain the same. Nesting DCC populations in Arkansas would likely increase along with damage to aquaculture, sport fish resources and wetland habitats. Objectives of this EA would not be met. The increase in nesting DCC populations in Arkansas will not have considerable effect on continental DCC populations. Cumulative impacts should be similar to Alternative Two.

Alternative Four- Nest and Egg Destruction

Nest and egg destruction is often considered as a viable control method for controlling nuisance birds (Bedard et al. 1999, Blackwell et al. 2000, Ickes et al. 1998, Pochop et al. 1998). Unfortunately, nest/egg destruction is only effective when trying to limit the growth of a bird population and is limited in application for arboreal colonies (Bedard et al. 1999). Korfanty et al (1999) states that oiling of eggs can be done only on land, not in trees, and is time consuming, costly and inefficient. DCC are long-lived birds which can live in excess of 10 years in the wild (James and Neal 1986). In most cases, WS destruction of only nests and eggs would still leave the nesting population above the optimum population. Furthermore, nest/egg destruction often only causes the birds to renest and produce later hatching offspring (Hatch and Weseloh1999). WS could destroy the renesting eggs but this would require increased work effort. In addition, the renesting birds may relocate the nest to an unknown site, thereby reducing efficacy of the control program. Nest/egg destruction does avoid the perception problem associated with shooting DCC, but does not provide control efficacy needed to achieve population suppression within EA objective. Impact on local and continental DCC populations would be minimal. Minimal cumulative impacts would be anticipated.

Alternative Five- Eradication of DCC nesting population

This alternative would eliminate all nesting DCC from Arkansas. Since historic accounts record DCC as nesting birds in Arkansas, this plan would diminish diversity within the avian community. DCC damage to aquaculture, sport fish and wetland habitats would decline during breeding season. However, it is the objective of this EA to only suppress nesting DCC populations in Arkansas. Immediate and cumulative impact on continental DCC populations would be minimal. Cumulative effects of control would be elimination of nesting DCC populations in Arkansas.

Impact on nontarget species populations including threatened and endangered species

Alternative One- Population Suppression and Technical Assistance (Proposed Action)
The proposed control action should have minimal adverse effects on nontarget species. Some nontarget colonial waterbirds may be temporally disturbed from their nests during control activities, however birds would likely return to their nests in a relatively short time after control activities are completed. Direct removal of DCC with firearms will allow precise removal of individual birds, allowing the collector an opportunity to identify the target and kill only DCC's. All individuals conducting control activities will be instructed in proper bird identification. In Arkansas, the only bird species with similar appearance to DCC are the Olivaceous Cormorant (Phalacrocorax olivaceus) and the Anhinga (Anhinga anhinga). Should the unlikely circumstance occur that one of these species is inadvertently taken, immediate and cumulative impact on their population would be minimal. No threatened or endangered species have similar appearances to DCC in Arkansas.

Alternative Two- No Federal Action
Wildlife Services would not have a direct impact on nontarget species. Without population control, nesting DCC numbers will grow and increased competition for limited wetland nest sites may negatively impact bird species in the area. Increased guano deposition on DCC nest trees may inhibit growth and negatively impact other plant species within the rookery. Cumulative effect would likely be detrimental to wetland plants and animals.

Alternative Three- DCC Monitoring and Technical Assistance (No Action)
Wildlife Services would not have a direct impact on nontarget species, but would only monitor DCC populations and provide Technical Assistance to those requesting WS' services. Without population control, nesting DCC numbers will grow and increased competition for limited wetland nest sites may negatively impact other bird species in the area. Increased guano deposition on DCC nest trees may inhibit growth and negatively impact other plant species within the rookery. Cumulative impacts would be similar to Alternative Two.

Alternative Four- Nest and Egg Destruction
Impact of this control program on nontarget species would be minimal. Nest/egg destruction is species specific and incidental take of nontargets is unlikely. This control method would possibly limit nesting DCC population growth to prevent nest competition with other bird species and reduce further impact on wetland plant species. Some nontarget colonial waterbirds may be temporally disturbed from their nests during control activities, however birds would likely return to their nests in a relatively short time after control activities are completed. Cumulative impacts would be minimal.

Alternative Five- Eradication of DCC nesting population
This alternative would be similar to the proposed control action and should have minimal effect on nontarget species. Some nontarget colonial waterbirds may be temporally disturbed from their nests during control activities, however birds would likely return to their nests in a relatively short time after control activities are completed. Direct removal of DCC with firearms will allow

precise removal of individual birds, allowing the collector an opportunity to identify the target and kill only DCC's. All individuals conducting control activities will be instructed in proper bird identification. In Arkansas, the only bird species with similar appearance to DCC are the Olivaceous Cormorant (Phalacrocorax olivaceus) and the Anhinga (Anhinga anhinga). Should the unlikely circumstance occur that one of these species is inadvertently taken, the overall impact on their population would be minimal. No threatened or endangered species have similar appearances to DCC in Arkansas. Cumulative impacts would be similar to Alternative One.

Effects on public safety

Alternative One- Population Suppression and Technical Assistance (Proposed Action)
The use of firearms by WS raises safety concerns on public safety. Firearms are only used by WS personnel who are experienced in handling and using them. During control operations, efforts will be taken to reasonably ensure the safety of all participants and individuals in the area. WS personnel are trained in firearms safety and handling as prescribed by WS policy. The Arkansas WS program has had no accidents involving the use of firearms in which a member of the public was harmed. A formal risk assessment of WS's operational management methods found that risks to human safety were low (USDA 1997, Appendix P). Therefore, no adverse impacts to public safety are expected from the use of firearms in this project.

Alternative Two- No Federal Action
WS will have no effect on public safety because no direct control activities will be implemented.

Alternative Three- DCC Monitoring and Technical Assistance (No Action)
Impacts to public safety would be similar to alternative 2.

Alternative Four- Nest and Egg Destruction
Public Safety associated with the use of firearms by WS would not occur under this alternative since WS would not be lethally removing any nesting DCC's. Therefore, impacts to public safety would be similar to alternative 2.

Alternative Five- Eradication of DCC nesting population
Effects of this alternative would be similar to the proposed action. During control operations, efforts will be taken to reasonably ensure the safety of all participants and individuals in the area. WS personnel are trained in firearms safety and handling as prescribed by WS policy. Therefore, no adverse impacts to public safety are expected from the use of firearms by WS in this project.

Humaneness of methods used

Alternative One- Population Suppression and Technical Assistance (Proposed Action)
Under this alternative, the control method of shooting is viewed by some persons as inhumane. Shooting, when performed by experienced professionals, usually results in a quick death for target birds. WS personnel will strive for head and neck shots when shooting DCC to achieve quick kills. This is the most humane method of shooting that is practically available under field conditions. Experience has shown that head and neck shots result in almost immediate death.

Occasionally, some birds are initially wounded and must be shot a second time or must be caught by hand and then dispatched or euthanized. The most common methods of euthanization would be by cervical dislocation which is AVMA-approved euthanasia method (Andrews et al. 1993) Most people would view AVMA-approved euthanization methods as humane. Some persons would view shooting as inhumane and would therefore prefer Alternative Two, Three and Four over this alternative.

Alternative Two- No Federal Action
Under this alternative, lethal methods viewed as inhumane by some persons would not be used by WS. Persons who view shooting as inhumane and would prefer this alternative over Alternative One and Five.

Alternative Three- DCC Monitoring and Technical Assistance (No Action)
Under this alternative, lethal methods viewed as inhumane by some persons would not be used by WS. Impacts under this alternative would be similar to Alternative Two.

Alternative Four- Nest and Egg Destruction
Under this alternative, lethal methods viewed as inhumane by some persons would not be used by WS. Nest/egg destruction is typically considered a humane way to limit nuisance bird populations. Adult birds are not physically injured during the control process. Persons who view shooting as inhumane and would likely prefer this alternative over Alternative One and Five.

Alternative Five- Eradication of DCC nesting population
Effects of this alternative would be similar to the proposed action. WS personnel will strive for head and neck shots when shooting DCC to achieve quick kills. This is the most humane method of shooting that is practically available under field conditions. Experience has shown that head and neck shots result in almost immediate death.

Effects on Aesthetics

Alternative One- Population Suppression and Technical Assistance (Proposed Action)
Alternative one will necessitate the killing of DCC as part of the population management strategy. It is a goal within this plan to maintain an optimal nesting DCC population within the state; however, the rapidly expanding population would be suppressed to maintain balance in economic, socio-cultural, and biological diversity. Persons whom derive aesthetic pleasure from DCC's would likely prefer this alternative to Alternative Five because nesting DCC's would remain in the state although at lower numbers. Those individuals that favor Alternative Two and Three would likely not support this alternative.

Alternative Two- No Federal Action
WS would not have an impact on DCC nesting populations in the state. Therefore WS would not affect the aesthetic values derived from viewing and knowing that DCC's are reproducing and thriving in the State. Persons whom receive negative aesthetic values associated with the destruction of native habitats and trees by nesting DCC's would likely not support this alternative. Impacts from this alternative would be similar to Alternative Three. Positive aesthetic values

associated with viewing would be greater than Alternative One and Five, and somewhat greater than Alternative Four. Negative aesthetic values associated with habitat and tree destruction would be greater than Alternative One and Five, and somewhat greater than Alternative Four.

Alternative Three- DCC Monitoring and Technical Assistance (No Action)
WS would not have an impact on DCC nesting populations in the state. Therefore WS would not affect the aesthetic values that individuals derive from viewing and knowing that DCC's are thriving in the State. Negative aesthetic values associated with the destruction of native habitats and trees would likely increase under this alternative. Impacts would be similar to Alternative Two.

Alternative Four- Nest and Egg Destruction
WS would not have a direct impact on individual DCC's nesting in the state. Adult DCC's would not be affected under this alternative. Therefore WS would not affect the aesthetic values that individuals derive from viewing and knowing that DCC's are in the State. Individuals that oppose the destruction of nests and eggs and also those who derive aesthetic values from knowing that DCC's are reproducing and thriving in Arkansas would likely oppose this alternative. Negative aesthetic values associated with the destruction of native habitats and trees could remain stable or increase under this alternative.

Alternative Five- Eradication of DCC nesting population
Under this alternative all nesting DCC's would be eliminated from the State. Persons that derive aesthetic pleasures from DCC's would likely oppose this alternative. Persons whom derive negative aesthetic values from DCC's would likely support this alternative.

Table 1. Relationship of reported summer (June - July) DCC Depredation Order kill and winter DCC Arkansas Audubon Christmas Bird Count (CBC) numbers 1998 & 1999.

Year	Reported kill	CBC	% killed
1998	17	4,856	0.35
1999	83	9,472	0.87

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Appendix A

Response to Comments to the Environmental Assessment "Nesting Double-crested Cormorant Damage Management in the Arkansas Wildlife Services Program"

Comment 1: ***Timing pre-empts release of U.S. Fish and Wildlife Service's National Management Plan for the double-crested cormorant and seems to be an attempt to circumvent U.S. Fish and Wildlife Service's procedures.***

Response 1: Wildlife Services (WS) by no means is attempting to circumvent the United States Department of Interior, United States Fish and Wildlife Service (USFWS) procedures of managing double-crested cormorants (DCC) by implementing DCC control methods as described in the EA. USFWS permits are required for some activities affecting migratory birds, including some of those administered by WS. WS will obtain the necessary Federal and State permits, including those issued by the USFWS, before a cormorant management program is implemented as described in the EA.

WS is a cooperating agency on the USFWS DCC EIS and National Management Plan. WS has been requested by the USFWS to assist in preparing these documents because USFWS recognizes WS's expertise and legislative authority in managing and solving human/wildlife conflicts. WS acknowledges that the EIS and National Management Plan may ultimately provide additional information and alternate control strategies to those described in the EA. Upon completion of the EIS and National Management Plan, WS will review the existing EA and make appropriate revisions as necessary.

Preparation of the EA complied with requirements of the National Environmental Policy Act and the CEQ Implementing Regulations (40 CFR 1500-1508). WS is authorized by Congress to manage a program to reduce human/wildlife conflicts. WS's vision is to improve the coexistence of people and wildlife, and its mission is to provide Federal leadership in managing problems caused by wildlife. Federal agencies, including (USFWS), recognize the expertise of WS to address wildlife damage issues related to migratory birds. The USFWS is responsible for managing and regulating take of bird species that are listed as migratory under the Migratory Bird Treaty Act and those that are listed as Threatened and Endangered species under the Endangered Species Act.

Comment 2: ***Wildlife Services lacks the legal authority to carry out the proposed action.***

Response 2: WS is directed by law to protect American agriculture and other resources from damage associated with wildlife. The primary statutory authority for the Wildlife Services program is the Animal Damage Control Act of 1931, as amended in the Fiscal Year 2001 Agriculture Appropriations Bill, which provides that:

> *"The Secretary of Agriculture may conduct a program of wildlife services with respect to injurious animal species and take any action the Secretary considers necessary in*

conducting the program. The Secretary shall administer the program in a manner consistent with all of the wildlife services authorities in effect on the day before the date of the enactment of the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2001."

Since 1931, with changes in societal and professional wildlife management values, WS policies and programs place greater emphasis on the part of the Act discussing "*bringing (damage) under control*," rather than "*eradication*" and "*suppression*" of wildlife populations. In 1988, Congress strengthened the legislative authorization of WS with the Rural Development, Agriculture, and Related Agencies Appropriations Act. This Act states, in part:

"That hereafter, the Secretary of Agriculture is authorized, except for urban rodent control, to conduct activities and to enter into agreements with States, local jurisdictions, individuals, and public and private agencies, organizations, and institutions in the control of nuisance mammals and birds and those mammal and bird species that are reservoirs for zoonotic diseases, and to deposit any money collected under any such agreement into the appropriation accounts that incur the costs to be available immediately and to remain available until expended for Animal Damage Control activities."

Wildlife Services activities are undertaken in compliance with relevant laws, regulations, policies, orders and procedures including the those administered by the U.S. Fish and Wildlife Service and the National Environmental Policy Act and the CEQ Implementing Regulations (40 CFR 1500-1508).

Comment 3: ***Statements on Cormorant impacts lack scientific basis.***

Response 3: NEPA procedures dictate that information used in the decision making process must be of high quality and recognizes that accurate scientific analysis, expert agency comments, and public scrutiny is essential to implementing NEPA (40CFR1500). NEPA provides further direction in evaluating the impacts of an action by the incorporation of materials by reference (40CFR1502.21) and how to proceed when information is incomplete or unavailable (40CFR1502.22). Wildlife Services follows these procedures and direction by using the best information that is available to make sound management decisions including the use of available scientific based literature, research studies, and expert advise and comments.

Comment 4: ***Plan of action lacks historical or ecological coherence for determining the "optimum population" as stated in the proposed action.***

Response 4: Wildlife Services (WS) uses the best information that is available to make sound management decisions including the use of available scientific based literature, research studies, and expert advise and comments. WS recognize that historical accounts exist which report large double-crested cormorant (DCC) nesting populations in the late 1800's and early 1900's. However, many social and environmental changes have occurred in the last 100 - 150 years. Repopulation of nesting DCC's to historical levels is not feasible given the present day economic

and social needs of Arkansas. The suppression efforts and "optimum population" as described in the plan of action are supported by the Arkansas Game and Fish Commission, the State agency that has the legislative responsibility of managing resident and migratory bird species within the State of Arkansas. The Arkansas Game and Fish Commission does not consider it prudent to encourage, maintain or allow the expansion of a viable breeding population of double-crested cormorants in Arkansas and do not believe that historical population levels are feasible or desirable given the economic needs of Arkansas (Hugh C. Durham AGFC, Letter dated February 16, 2001).

Comment 5: ***The EA fails to discuss the impacts of shooting double-crested cormorants on other species.***

Response 5: This issue is discussed in detail within the EA under the issue "Impact on non target species populations including threatened and endangered species."

Comment 6: ***Proposed action deviates from Wildlife Services own methods.***

Response 6: WS uses an integrated wildlife damage management (IWDM) approach, as described in the Final Environmental Impact Statement (FEIS) developed by WS for the national WS program (USDA 1997). As stated in the FEIS (USDA 1997), the suppression of wildlife is an appropriate course of action to take on a localized basis and is one management strategy of the present WS program. Suppression is used by WS in situations where population suppression is an objective, such as those stated in the EA. WS uses and recommends appropriate legal, effective, practical, and environmentally responsible methods to address wildlife damage problems. IWDM provides a means of reducing future losses or damage associated with or caused by wildlife. In selecting control techniques for specific damage situations, consideration is given to the responsible species and the magnitude, geographic extent, duration and frequency, and likelihood of wildlife damage. Consideration also must be given to the status of target and potential nontarget species, local environmental conditions and impacts, social and legal aspects, and relative costs of control options. The cost of control is often a secondary concern because of the overriding environmental, legal, and animal welfare considerations. Thses factors are evaluated in formulating control strategies that incorporate the application of one or more techniques. The standard WS Decision Model (Slate et al. 1992) and WS Directive 2.105 is the decision-making process for determining methods and strategies to use or recommend for individual actions conducted by WS.

Comment 7: ***Inadequate justification of the need for action; There is no need to control nesting cormorants.***

Response 7: WS cooperates with private property owners and managers and with appropriate land and wildlife management agencies, as requested, with the goal of effectively and efficiently resolving wildlife damage problems in compliance with all applicable Federal, State, and local laws. The Arkansas Game and Fish Commission, the State agency that has the legislative responsibility of managing resident and migratory bird species within the State of Arkansas, supports the suppression of breeding double-crested cormorants in Arkansas to prevent potential

unacceptable impacts to aquacultural and /or wild fishery resources as well as other interests (Hugh C. Durham AGFC, Letter dated February 16, 2001).

In the Southern Utah Wilderness Alliance, et al. vs. Hugh Thompson, Forest Supervisor for the Dixie National Forest, et al., the United States District Court of Utah denied plaintiffs' motion for preliminary injunction. In part, the court found that a forest supervisor need only show imminent threat of damage is probable to establish a need for wildlife damage management (U.S. District Court of Utah 1993).

Comment 8: ***Affected environment should be limited in scope to current nesting sites.***

Response 8: Wildlife damage management falls within the category of federal or other agency actions in which the exact timing or location of individual activities cannot usually be predicted well enough ahead of time to accurately describe such locations or times in an EA or EIS. The WS program is analogous to other agencies or entities with damage management missions such as fire and police departments, emergency cleanup organizations, insurance companies, etc. Although WS can predict some of the possible locations or types of situations and sites where some kinds of wildlife damage will occur, the program cannot predict the specific locations or times at which affected resource owners will determine a damage problem has become intolerable to the point that they request assistance from WS. In terms of considering cumulative impacts, one EA analyzing impacts of the state may provide a better analysis than multiple EA's covering smaller zones.

Comment 9: ***Lethal remedies should be pursed only after non-lethal options have been proven ineffective.***

Response 9: Non lethal control methods have not proven to be effective in controlling double-crested cormorant (DCC) damage in Arkansas. Harassment of DCC at damage sites and roosting locations have not proven to be an effective long-term control strategy. Non-lethal control strategies are part of the Technical Assistance program administered under the proposed program. Persons requesting non-lethal options will be given information on non-lethal methods that are available for reducing damage associated with nesting cormorants. The requester will ultimately be responsible for implementing any non-lethal options recommended by WS.

The process of using nonlethal methods before lethal methods could increase the chance of unsuccessfully suppressing the breeding population of double-crested cormorants throughout the State. Non-lethal methods would likely allow the continued expansion of the breeding population throughout the State since adult breeding birds would remain in place after the implementation of non-lethal control methods. Furthermore, as described in the EA the use of non-lethal methods, such as nest and egg destruction, would not be practical or efficient based upon the objectives established in the EA.

Literature Cited

Slate, D.A., R. Owens, G. Connolly, and G. Simmons. 1992. Decision making for wildlife damage management. Trans. N.A. Wild. Nat. Res. Conf. 57:51-62.

USDA (U.S. Department of Agriculture), Animal Plant Health Inspection Service (APHIS), Animal Damage Control (ADC). 1997 (revised). Final Environmental Impact Statement. USDA, APHIS, ADC Operational Support Staff, 4700 River Road, Unit 87, Riverdale, MD 20737-1234.

DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT

Nesting Double-crested Cormorant Damage Management in the Arkansas Wildlife Services Program

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS), Wildlife Services (WS) program responds to requests for assistance from individuals, organizations and agencies experiencing damage caused by wildlife in Arkansas. WS has prepared an environmental assessment (EA) that analyzes alternatives for managing nesting double-crested cormorant (DCC) damage associated with breeding DCC's in the state of Arkansas. Ordinarily, according to APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management actions may be categorically excluded (7 CFR 372.5(c), 60 Fed. Reg. 6000-6003, 1995). An EA was prepared in this case to facilitate planning, interagency coordination, and the streamlining of program management, and to clearly communicate with the public the analysis of cumulative impacts. The pre-decisional EA released by WS in November 2000 documented the need for nesting DCC damage management in Arkansas and assessed potential impacts of various alternatives for responding to nesting DCC damage problems. Comments from the public involvement process were reviewed for substantial issues and alternatives which were considered in developing this decision. The EA is tiered to the programmatic Environmental Impact Statement (EIS) for the Wildlife Services Program[1] (USDA 1997).

WS's proposed action was to implement a damage management program that would include the lethal removal and suppression of nesting DCC's throughout the state of Arkansas and to incorporate WS's current technical assistance approach to managing DCC conflicts. Nesting DCC control actions will only take place after a request for services has been received and where permission has been granted by private landowner or government manager. Based on the analysis in the EA, I have determined that there will not be a significant impact, individually or cumulatively, on the quality of the human environment from implementing the proposed action, and that the action does not constitute a major federal action significantly affecting the quality of the human environment.

Public Involvement

The pre-decisional EA was prepared and released to the public for a 45-day comment period by a legal notice in the Arkansas Democrat Gazette on November 17, 2000. The pre-decisional EA was also mailed directly to agencies, organizations, and individuals with probable interest in the proposed program. Eleven comment letters were received by WS within the comment period. All comments were analyzed to identify substantial new issues, alternatives, or to redirect the

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[1] USDA (U.S. Department of Agriculture), Animal and Plant Health Inspection Service (APHIS), Animal Damage Control (ADC). 1997 (revised). Animal Damage Control Program, Final Environmental Impact Statement. Anim. Plant Health Inspection Serv., Anim. Damage Control. Hyattsville, MD. Volume 1, 2 & 3.

program. All letters and responses are maintained in the administrative file located at the Arkansas WS State Office, 600 W. Capitol Ave., Room 55, Little Rock, AR 72201. Responses to specific comments are included in Appendix A of this FONSI.

Affected Environment

The areas of the proposed action include area of the State that DCC's are currently or may attempt to use as nesting sites. These areas may include lakes, swamps, marshes, riverines, rivers, streams, and any other water or land bodies that DCC's may use as nesting sites. The proposed action could occur on private or public properties within the State of Arkansas.

Objectives

Suppress and maintain the nesting DCC population in Arkansas at optimum levels. Optimum levels of nesting DCC in Arkansas are the following:

1. Maintain [redacted] rookery at an annual level of 5 nesting pairs.
2. Maintain newly discovered DCC rookeries at their current level, if they can be credibly documented to exist prior to the year of discovery.
3. Destroy all DCC's at newly established rookery sites that can not be credibly documented to have existed prior to the year of discovery.

Major Issues

Several major issues were contained in scope of this EA. These issues were consolidated into the following 5 primary issues to be considered in detail:

1. Impact on DCC population
2. Impact on nontarget species populations including threatened and endangered species
3. Effects on public safety
4. Humaneness of methods used
5. Effects on Aesthetics

Alternatives Analyzed in Detail

Five potential alternatives were developed to address the issues identified above. A detailed discussion of the anticipated effects of the alternatives on the objectives and issues are contained in the EA. The following summary provides a brief description of each alternative and its anticipated impacts.

<u>Alternative One- Population Suppression and Technical Assistance (Proposed Action)</u>
Under this Alternative WS would provide Technical Assistance and suppress the growth of nesting DCC populations in Arkansas by monitoring existing rookeries and annually adjusting populations to predetermined levels by lethal removal of DCC's. This alternative would allow the control of nesting DCC populations to maintain a balance in the economic, socio-cultural, and

biological diversity found in Arkansas. Nesting DCC control actions will only take place after a request for services has been received and where permission has been granted by private landowner(s) or government manager. Arkansas nesting populations of DCC would be maintained at an optimum level as described in the program objectives above and as supported by the Arkansas Game and Fish Commission (Hugh C. Durham AGFC, Letter dated February 16, 2001). This alternative will likely stabilize nesting DCC populations within Arkansas, while having minimal effects upon regional (southeast U.S.) and flyway DCC populations. The alternative would likely reduce and minimize nesting cormorant damage to resources, while having minimal to no adverse effects on nontarget species and no adverse impacts on public safety.

Alternative Two- No Federal Action

This Alternative would allow nesting DCC populations in Arkansas to continue at the current rate of increase. WS would not be involved in the management of problems caused by DCC's during the breeding season. Nesting DCC populations in Arkansas would likely increase above historical levels and the objectives of the program would not be met. Effects of expanding nesting DCC populations would likely lead to increased damage to resources within the State. WS would not have a direct impact on nontarget species or public safety.

Alternative Three- DCC Monitoring and Technical Assistance (No Action)

Under this alternative WS would continue to monitor Arkansas nesting DCC populations and provide technical assistance to stakeholders experiencing damage during the DCC breeding season. This alternative would not provide any direct operational control of nesting DCC populations in Arkansas. No nesting DCC's would be lethally removed by WS under this alternative. Impacts of this Alternative would be similar to Alternative 2, except WS would be monitoring nesting DCC populations and providing advice to affected resource owners. Damage to resources would continue but possibly at lower levels than those associated with Alternative 2. WS would not have a direct impact on nontarget species or public safety

Alternative Four- Nest and Egg Destruction

Under this Alternative WS would suppress growth of nesting DCC populations in Arkansas by monitoring existing rookeries and annually adjusting populations to predetermined levels as described in the program objectives by nest and egg destruction. No adult or young of the year DCC's would be lethally removed under this alternative. In most cases, WS destruction of only nests and eggs would still leave the nesting population above the optimum population. Impacts of this alternative would be minimal to nontarget species and would have no effect on public safety. Damage to resources would continue to occur. However, damage to resources would likely be less than under Alternative 2 and 3.

Alternative Five- Eradication of DCC nesting population

Under this alternative WS would eliminate all nesting DCC populations from Arkansas by lethal removal of adult and young of year birds. Control methods used under this alternative would be similar to the proposed action. DCC's would not be allowed to nest or reproduce anywhere in the State. All existing and newly discovered DCC rookeries would be eliminated. This Alternative would diminish the diversity in the avian community. The objectives of the program would not be

met. This alternative would not allow the control of nesting DCC populations to maintain a balance in economic, socio-cultural , and biological diversity found in Arkansas. The alternative would reduce and minimize nesting DCC damage to resources, while having minimal to no adverse effects on nontarget species and no adverse impacts on public safety.

Finding of No Significant Impact

The analysis in the EA indicates that there will not be a significant impact, individually or cumulatively, on the quality of the human environment as a result of this proposed action. I agree with this conclusion and therefore find that an EIS need not be prepared. This determination is based on the following factors:

1. Nesting double-crested cormorant damage management as conducted by WS in the State of Arkansas is not regional or national in scope.

2. Based on the analysis documented in the EA, the impacts of the proposed action will not significantly affect public health or safety. Risks to the public from WS methods were determined to be low in a formal risk assessment (USDA 1997, Appendix P).

3. The proposed action will not have a significant impact on unique characteristics such as park lands, wetlands, wild and scenic areas, or ecologically critical areas. Built-in mitigation measures that are part of WS's standard operating procedures and adherence to laws and regulations will further ensure that WS activities do not harm the environment.

4. The effects on the quality of the human environment are not highly controversial. Although certain individuals may be opposed to killing nesting double-crested cormorants, this action is not controversial in relation to size, nature, or effects.

5. Mitigation measures adopted and/or described as part of the proposed action minimize risks to the public, prevent adverse effects on the human environment, and reduce uncertainty and risks. Effects of methods and activities, as proposed, are known and do not involve uncertain or unique risks.

6. The proposed action does not establish a precedent for future actions. This action would not set a precedent for future nesting double-crested cormorant damage management that may be implemented or planned within the State.

7. The number of nesting double-crested cormorants that will be taken by WS annually is very small in comparison to total regional and flyway cormorant populations. Adverse effects on other wildlife species and on wildlife habitat would be minimal. The EA discussed cumulative effects of WS on target and nontarget species populations and concluded that such impacts were not significant for this or other anticipated actions to be implemented or planned within the State.

8. This action will not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places and will not cause loss or destruction of significant scientific, cultural, or historic resources. Wildlife damage management would not disturb soils or any structures and therefore would not be considered a "Federal undertaking" as defined by the National Historic Preservation Act.

9. WS determined that the proposed project would not adversely affect Federally or Arkansas State listed threatened or endangered species.

10. The proposed action is consistent with local, state, and federal laws that provide for or restrict WS wildlife damage management. Therefore, WS concludes that this project is in compliance with federal, state and local laws for environmental protection.

Decision and Rational

I have carefully reviewed the Environmental Assessment (EA) prepared for this proposal and the input from the public involvement process. I believe that the issues identified in the EA are best addressed by selecting Alternative 1 (*Population Suppression and Technical Assistance - Proposed Action*) and applying the associated mitigation and monitoring measures discussed in the EA. Alternative 1 is selected because (1) it offers the greatest chance at maximizing effectiveness and benefits to resource owners and managers while minimizing cumulative impacts on the quality of the human environment that might result from the program's effect on target and nontarget species populations; (2) it presents the greatest chance of maximizing net benefits while minimizing adverse impacts to public health and safety; and, (3) it offers a balanced approach to the issues of humaneness and aesthetics when all facets of these issues are considered. The comments identified from public involvement were minor and did not change the analysis. Therefore, it is my decision to implement the proposed action as described in the EA.

Copies of the EA are available upon request from the Arkansas WS State Office, 600 W. Capitol Ave., Room 55, Little Rock, AR 72201

/s/ 04/04/01

Gary E. Larson Date
Director, Eastern Region, USDA-APHIS-WS